until the pericardial flaps are drawn out of the way to expose the surgical site on the heart. The pericardial sutures may then be clamped in position in suture stays 62.

When it is time to perform the coronary anastomosis, mounting base 72 for stabilizer 70 is positioned along one of rails 28, 29 or on crossbeam 22 at the desired position, and lever 104 is actuated to lock mounting base 72 in position. Stabilizer 70 is then positioned so that foot 80 engages the epicardium near the anastomosis site. Usually, arms 84 are positioned on opposing sides of the target coronary artery aligned with the anastomosis site. Alternatively, one of arms 84 may be positioned so as to engage the coronary artery itself upstream of the anastomosis site to occlude the coronary artery to provide hemostasis during the anastomosis. Once positioned, stabilizer 70 is locked in position by tightening cap 124 and knob 152. Stabilizer 70 maintains relative stillness in the heart wall in the area of the anastomosis, while the heart continues to beat and the remainder of the heart wall contracts.

Figures 12A-12B illustrate an additional embodiment of stabilizer 70 of the invention. In this embodiment, stabilizer 70 includes a pair of suture retainers 164 which may be mounted to foot 80. Preferably, retainers 164 are removable from foot 80 so that stabilizer 70 may be used with or without retainers 164 in place. Retainers 164 have a body 166 and a plurality of channels 168 configured to receive a suture or silastic used in the particular surgical procedure being performed. Channels 168 are dimensioned to frictionally engage the suture or silastic material with sufficient force to retain the material under tension, preferably having a width of about 0.010-0.030 in. and a depth of about 0.10-0.20 in. depending upon the type and size of suture or silastics utilized. In this way, sutures or silastics may be placed under the target coronary artery so as to form a sling on one or both sides of the anastomosis site, and the sutures or silastics may be tensioned to better expose the coronary artery relative to the surrounding myocardium, as well as to occlude the coronary artery for hemostasis. The sutures or silasatics may then be placed in channels 168 and are retained therein under tension during the procedure. In a preferred embodiment, retainers 164 have two pins 170 which extend from the bottom surfaces thereof and are received in holes 172 in foot 80. Pins 170 have flanges 174 which snap into holes 172 and retain pins 170 therein. Retainers 164 and pins 170 may be metal, rubber or plastic.

Figure 13 illustrates an additional embodiment of stabilizer 70 of the invention. In this embodiment, a blower 176 is coupled to stabilizer 70 to allow for the delivery of a gas such as CO2 to the surgical site. This helps to keep the site free of fluids and debris, as well as helps to inhibit the introduction of oxygen into the coronary arteriotomy. Blower 176 includes a shaft 178 having at least one inner lumen extending therethrough. Preferably, a second inner lumen is also provided. The inner lumens communicate with at least one opening at the distal end 180 of shaft 178, and with inlet ports 182,184 at the proximal end of shaft 178. Inlet port 182 may be connected to a supply of gas such as CO2, while inlet port 184 may be connected to a source of saline for irrigating or misting the surgical site, or to a source of suction for aspirating fluid and debris. Both inlet ports 182, 184 may be in communication with a single inner lumen in shaft 178, or each inlet port may be in communication with a separate inner lumen in the shaft. At least one clip 186 is attached to shaft 178 and is configured to be removably coupled to shaft 78 of stabilizer 70. Preferably, blower 176 is positionable such that its distal end 180 is disposed between arms 84 of foot 80 and close to the proximal end of the foot so as to deliver or suction fluids from the site without interfering with the anastomosis.

Figures 14A-14C illustrate a heart retractor which may be utilized with the system of the invention. Heart retractor 188 has a shaft 190 with a paddle 192 at its distal end and a handle 194 at its proximal end. Paddle 192 is covered with a soft, friction-enhancing and preferably absorbent material 196 such as adhesive-backed Dacron gauze. Paddle 192 is dimensioned to enable engagement with the outer wall of the heart and rolling, lifting or pushing the heart into a desired location during a surgical procedure, preferably having a width of about 1-3 inches and a length of about 2-4 inches across its face. Handle 194 is configured to be gripped by a surgeon's hand and is lightweight and compact, preferably being made of a lightweight plastic. Heart retractor 188 is preferably clamped onto rails 28, 29 or crossbeam 22 by means of mounting base 72 utilized with stabilizer 70, as described above. In this way, heart retractor 188 may be used to manipulate the heart into a desired position, and the heart retractor may be locked in place on retractor 20 to maintain the heart in position while an anastomosis or other procedure is performed. This facilitates the performance of anastomoses on the sides and back of the heart to enable multivessel coronary bypass procedures.

Figures 15A-B illustrate a vascular clamp holder that may be utilized with the system of the invention. Vascular clamp holder 200 includes a clip 202 configured to removably attach to a commercially-available vascular clamp 203 such as a Fogarty Clamp, as shown. Clip 202 has a slot 204 configured to receive a button 206 on the vascular clamp, and an axial channel 208 through which a shaft 209 of the vascular clamp may extend. Axial channel 208 has a side opening 210 through which shaft 209 may be placed in the channel, the side opening preferably having a width slightly smaller than shaft 209 so that the shaft is maintained in channel 208 once inserted therein. A malleable rod 212 extends from clip 202 to mount 214 and may be shaped in order to place clip 202 in a desired position. Mount 214 is configured to be attached to rails 28, 29 or crossbeam 22 on retractor 20, and may be constructed in a manner similar to that described above for mounting base 72. However, mount 214 need not have the same degree of positionability as mounting base 72, allowing both spherical joints to eliminated. Thus, mount 214 has a carriage 216 like carriage 90 described above, and is adapted for slidable engagement with rails 28, 29 or crossbeam 22. Carriage 216 has a living hinge 218 about which an outer portion 220 rotates relative to inner portion 222. A rotatable lever 224 has a cam 226 which engages a camming surface 228 on outer portion 220 to urge it against rails 28, 29 or crossbeam 22, thus locking mount 214 in place.

While the above is a complete description of the preferred embodiments of the invention, it will be appreciated that various equivalents, modifications, additions and substitutions may be made without departing from the scope thereof. Therefore, the above should not be taken as limiting the scope of the invention, which is defined by the following claims.